

1. A method of storing digital video content to facilitate trick play, the content comprising intra-coded frames of video and inter-coded frames of video, the method comprising:

- storing the inter-coded and the intra-coded frames of the content in a first file;
- 5 storing a duplicate of the inter-coded frames of the content in a second file;
- storing a set of forward indices that relates the intra coded frames with the inter-coded frames in a forward direction such that playback of the second file in the order of the forward indices simulates a fast-forward playback; and
- storing a set of reverse indices that relates the intra-coded frames with the inter-
- 10 coded frames in a reverse direction such that playback of the second file in the order of the reverse indices simulates a fast-reverse playback.

2. The method according to claim 1, further comprising generating the set of forward indices and the set of reverse indices for storage.

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3. The method according to claim 1, wherein the digital video content is MPEG encoded, wherein the inter-coded frames comprise I-frames, and wherein the intra-coded frames comprise P-frames and B-frames.

20 4. The method according to claim 1, further comprising retrieving the inter-coded and the intra-coded frames from the first file to produce a normal playback stream.

5. The method according to claim 4, further comprising retrieving the inter-coded frames from the second file in the order of the forward indices to produce a fast forward playback stream, and wherein the retrieving of inter-coded frames from the second file starts at a frame near a current playback point in the normal playback stream, and wherein the frame near the current playback point is determined from the forward indices.

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6. The method according to claim 1, further comprising retrieving the inter-coded frames from the second file in the order of the forward indices to produce a fast forward playback stream.

5 7. The method according to claim 6, further comprising retrieving the inter-coded and intra-coded frames from the first file in the order of the forward indices to produce a normal playback stream, and wherein the retrieving of inter-coded and intra-coded frames from the first file starts at a frame near a current playback point in the fast forward playback stream, and wherein the frame near the current playback point is determined
10 from the forward indices.

8. The method according to claim 1, further comprising retrieving the inter-coded frames from the second file in the order of the reverse indices to produce a fast reverse playback stream.

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9. The method according to claim 8, further comprising retrieving the inter-coded and intra-coded frames from the first file in the order of the forward indices to produce a normal playback stream, and wherein the retrieving of inter-coded and intra-coded frames from the first file starts at a frame near a current playback point in the fast reverse
20 playback stream, and wherein the frame near the current playback point is determined from the reverse indices.

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10. A method of storing digital video content to facilitate trick play, the content comprising intra-coded frames of video and inter-coded frames of video, the method comprising:

storing the inter-coded and the intra-coded frames of the content in a first file;

5 storing the intra-coded frames of the content in a second file;

storing a set of indices that relate the intra-coded frames in the first file with the intra-coded frames in the second file, such that playback of the second file simulates a fast-forward playback if played back in a first order and simulates a fast rewind if played back in a second order.

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11. The method according to claim 10, further comprising generating the set of indices for storage.

12. The method according to claim 10, wherein the digital video content is MPEG
15 encoded, wherein the inter-coded frames comprise I-frames, and wherein the intra-coded frames comprise P-frames and B-frames.

13. The method according to claim 10, further comprising retrieving the inter-coded and the intra-coded frames from the first file to produce a normal playback stream.

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14. The method according to claim 13, further comprising retrieving the inter-coded frames from the second file in a first order of the indices to produce a fast forward playback stream, and wherein the retrieving of inter-coded frames from the second file starts at a frame near a current playback point in the normal playback stream, and
25 wherein the frame near the current playback point is determined from the indices.

15. The method according to claim 10, further comprising retrieving the inter-coded frames from the second file in a first order of the indices to produce a fast forward playback stream.

16. The method according to claim 15, further comprising retrieving the inter-coded and intra-coded frames from the first file to produce a normal playback stream, and wherein the retrieving of inter-coded and intra-coded frames from the first file starts at a
5 frame near a current playback point in the fast forward playback stream, and wherein the frame near the current playback point is determined from the indices.
17. The method according to claim 10, further comprising retrieving the inter-coded frames from the second file in a second order of the indices to produce a fast reverse
10 playback stream.
18. The method according to claim 17, further comprising retrieving the inter-coded and intra-coded frames from the first file to produce a normal playback stream, and wherein the retrieving of inter-coded and intra-coded frames from the first file starts at a
15 frame near a current playback point in the fast reverse playback stream, and wherein the frame near the current playback point is determined from the indices.

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19. A method of storing digital video content to facilitate trick play, the content comprising intra-coded frames of video and inter-coded frames of video, the method comprising:

- storing the inter-coded frames of the content in a first file;
- 5 storing the intra-coded frames of the content in a second file;
- storing a set of forward indices that relate the intra-coded frames to the inter-coded frames in a forward direction such that playback of the second file in the order of the forward indices simulates a fast-forward playback; and
- storing a set of reverse indices that relate the intra-coded frames to the inter-coded
- 10 frames in a reverse direction such that playback of the second file in the order of the reverse indices simulates a fast-reverse playback.

20. The method according to claim 19, further comprising generating the set of forward indices and the set of reverse indices for storage.

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21. The method according to claim 19, wherein the digital video content is MPEG encoded, wherein the inter-coded frames comprise I-frames, and wherein the intra-coded frames comprise P-frames and B-frames.

20 22. The method according to claim 19, further comprising retrieving the inter-coded frames from the first file and the intra-coded frames from the second file to produce a normal playback stream.

23. The method according to claim 22, further comprising retrieving the inter-coded frames from the second file in the order of the forward indices to produce a fast forward playback stream, and wherein the retrieving of inter-coded frames from the second file starts at a frame near a current playback point in the normal playback stream, and
5 wherein the frame near the current playback point is determined from the forward indices.

24. The method according to claim 19, further comprising retrieving the inter-coded frames from the second file in the order of the forward indices to produce a fast forward
10 playback stream.

25. The method according to claim 24, further comprising retrieving the inter-coded frames from the second file and the intra-coded frames from the first file in the order of the forward indices to produce a normal playback stream, and wherein the retrieving of
15 the intra-coded frames from the first file starts at a frame near a current playback point in the fast forward playback stream, and wherein the frame near the current playback point is determined from the forward indices.

26. The method according to claim 19, further comprising retrieving the inter-coded
20 frames from the second file in the order of the reverse indices to produce a fast reverse playback stream.

27. The method according to claim 26, further comprising retrieving the inter-coded frames from the second file and the intra-coded frames from the first file in the order of
25 the forward indices to produce a normal playback stream, and wherein the retrieving of inter-coded frames from the second file and the intra-coded frames from the first file starts at a frame near a current playback point in the fast reverse playback stream, and wherein the frame near the current playback point is determined from the reverse indices.

28. A method of storing digital video content to facilitate trick play, the content comprising intra-coded frames of video and inter-coded frames of video, the method comprising:

storing the inter-coded frames of the content in a first file;

5 storing the intra-coded frames of the content in a second file;

storing a set of indices that relate the intra-coded frames in the first file with the intra-coded frames in the second file, such that playback of the second file simulates a fast-forward playback if played back in a first order and simulates a fast rewind if played back in a second order.

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29. The method according to claim 28, further comprising generating the set of indices for storage.

30. The method according to claim 28, wherein the digital video content is MPEG
15 encoded, wherein the inter-coded frames comprise I-frames, and wherein the intra-coded frames comprise P-frames and B-frames.

31. The method according to claim 30, further comprising retrieving the inter-coded frames from the first file and the intra-coded frames from the second file to produce a
20 normal playback stream.

32. The method according to claim 31, further comprising retrieving the inter-coded frames from the second file in a first order of the indices to produce a fast forward playback stream, and wherein the retrieving of inter-coded frames from the second file
25 starts at a frame near a current playback point in the normal playback stream, and wherein the frame near the current playback point is determined from the indices.

33. The method according to claim 28, further comprising retrieving the inter-coded frames from the second file in the order of the forward indices to produce a fast forward playback stream.

5 34. The method according to claim 33, further comprising retrieving the inter-coded frames from the second file and the intra-coded frames from the first file in the order of the forward indices to produce a normal playback stream, and wherein the retrieving of the intra-coded frames from the first file starts at a frame near a current playback point in the fast forward playback stream, and wherein the frame near the current playback point
10 is determined from the forward indices.

35. The method according to claim 28, further comprising retrieving the inter-coded frames from the second file in a second order of the indices to produce a fast reverse playback stream.

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36. The method according to claim 35, further comprising retrieving the inter-coded frames from the second file and the intra-coded frames from the first file in a first order of the indices to produce a normal playback stream, and wherein the retrieving of inter-coded frames from the second file and the intra-coded frames from the first file starts at a
20 frame near a current playback point in the fast reverse playback stream, and wherein the frame near the current playback point is determined from the indices.

37. A video method, comprising:
retrieving inter-coded video from a first file;
retrieving intra-coded video from a second file; and
assembling the inter-coded video with the intra-coded video to produce an
5 assembled selection of video content.
38. The method according to claim 37, further comprising spooling the assembled
selection of video to produce a normal playback output stream.
- 10 39. The method according to claim 38 further comprising:
receiving an instruction to begin a fast-forward playback trick mode;
responsive to the instruction, retrieving a forward indexed sequence of inter-
coded video from the second file to produce a sequence of video frames that simulate the
fast-forward playback trick mode; and
15 spooling the sequence of video frames to produce a fast forward output stream.
40. The method according to claim 39, wherein the fast forward stream is started at an
intra-coded video frame in the normal playback output stream.
- 20 41. The method according to claim 37 further comprising:
receiving an instruction to begin a fast-reverse playback trick mode;
responsive to the instruction, retrieving a reverse indexed sequence of inter-coded
video from the second file to produce a sequence of video frames that simulate the fast-
reverse playback trick mode; and
25 spooling the sequence of video frames to produce a fast reverse output stream.
42. The method according to claim 41, wherein the fast reverse stream is started at an
intra-coded video frame in the normal playback output stream.

43. A computer readable storage device for storage and retrieval of digital video content, comprising:

a computer readable storage device;

5 a first file residing on the storage device storing inter-coded frames of the digital video content;

a second file residing on the storage device storing intra-coded frames of the digital video content;

10 an index table stored on the storage device that relate the intra-coded frames in the first file with the intra-coded frames in the second file, such that playback of the second file simulates a fast-forward playback if played back in a first order and simulates a fast rewind if played back in a second order.

44. A computer readable storage device for storage and retrieval of digital video content, comprising:

at least one computer readable storage medium;

5 a first file residing on the storage medium storing inter-coded frames of the digital video content;

a second file residing on the storage medium storing intra-coded frames of the digital video content in a second file;

10 a forward index table residing on the storage medium that relates the intra-coded frames to the inter-coded frames in a forward direction such that playback of the second file in the order of the forward indices simulates a fast-forward playback; and

a reverse index table residing on the storage medium that relates the intra-coded frames to the inter-coded frames in a reverse direction such that playback of the second file in the order of the reverse indices simulates a fast-reverse playback.

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